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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/633,705 | 08/07/2000 | Frederick L. Martin | CM03054J | 3816 |

24273 7590 05/20/2004

MOTOROLA, INC
INTELLECTUAL PROPERTY SECTION
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| EXAMINER |
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VOLPER, THOMAS E

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| ART UNIT | PAPER NUMBER |
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2665

DATE MAILED: 05/20/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/633,705

Applicant(s)

MARTIN, FREDERICK L.

Examiner

Thomas Volper

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 13-16 is/are rejected.
- 7) ☒ Claim(s) 9-12 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Claim 5 recites the limitations "the input clock signal" and "the input clock" in lines 2-3. There is insufficient antecedent basis for these limitations in the claim.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-8 and 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Donnelly et al. (US 5,945,862) in view of Georgiou et al. (US 5,668,830).

Regarding claims 1, 2 and 13, Donnelly discloses a delay line (210) having a plurality of taps, a selection circuit (250) coupled to the delay line, the selection circuit having a plurality of input ports for receiving the plurality of delay taps and an output port for providing an output signal (see Figure 2). Donnelly discloses a Clk_In signal, which meets the limitation of a

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reference clock, coupled to the delay chain (see Figure 2), and the delay chain is tuned to produce tapped phases of the Clk_In signal (col. 4, lines 30-36). Donnelly fails to expressly disclose a synchronization circuit having a first input port for receiving the output signal from the selection circuit and a second input port for receiving a trigger signal, the synchronization circuit further having an output port for providing an output signal only when the synchronization circuit is gated by the trigger signal. Georgiou discloses a slip-cycle compensation re-timing logic (32) with a first input port for receiving an output signal from a multiplexor (see Figure 2). The re-timing circuit also has a reference clock as an input (see Figure 2). This re-timing logic meets the limitation of a synchronization circuit. Georgiou also discloses a byte_clock for outputting the signal from the re-timing logic (see Figure 3; col. 8, line 64 – col. 9, line 21), which meets the limitation of a trigger signal for providing output only when the synchronization circuit is gated by the trigger signal. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use the re-timing logic of Georgiou in the delay adjustment circuitry of Donnelly. One of ordinary skill in the art would have been motivated to do this in order to phase align the output with a reference clock.

Regarding claims 3 and 16, Donnelly discloses equally spaced taps (col. 4, lines 54-59).

Regarding claim 4, Donnelly discloses that the delay chain is constructed from inverting delay elements. Each tap in the delay chain produces a delayed same polarity edge using two inverters between taps (col. 4, lines 28-38).

Regarding claim 5, Donnelly discloses an inverted version of the Clk_In signal that is shifted 180 degrees plus the time delay of the delay chain taps (col. 4, lines 34-36).

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Regarding claims 6 and 14, Donnelly discloses using the invention in a delay locked loop (col. 1, lines 5-9).

Regarding claim 7, Donnelly discloses a Clk_In signal, which is equivalent to a reference signal, coupled to the delay chain (see Figure 2) and Georgiou discloses a reference clock input coupled to the re-timing circuit (see Figure 2). Donnelly also discloses that a selection logic (280) controls the selection circuit (250), and the selection logic receives an instruction from a Sel_Cntl signal (col. 3 lines 40-52; Figure 2). This Sel_Cntl meets the limitation of an n-bit binary word.

Regarding claims 8 and 15, Donnelly discloses that the Clk_In signal is a periodic signal (col. 2, lines 20-22), meeting the limitation of a pulse train having rising and falling edges. Georgiou discloses that the output of the re-timing circuit is performed depending whether enough bits are collected in a buffer to form a symbol, and outputting a symbol in accordance with a byte_clock (see Figure 3; col. 8, line 64 – col. 9, line 21). The Sel_Cntl signal determines what phase of the clock signal is outputted from the selection circuit to the re-timing circuit, thus the accumulation of bits in the buffer must be based on the Sel_Cntl signal. This meets the limitation of forming time apertures for the output signal of the selection circuit to be presented to the output of the re-timing circuit in the system provided by Donnelly in view of Georgiou.

Allowable Subject Matter

6. Claims 9-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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Regarding claims 9-12, the prior art of record fails to expressly disclose, either alone or in combination, forming an aperture region when $IN \leq N/2$ that begins on the first rising edge of the reference signal after the first rising edge of the trigger signal and remains active for a predetermined period thereafter.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Kyles (US 6,028,462) Tunable Delay for Very High Speed

- Keeth et al. (US 6,101,197) Method and Apparatus for Adjusting the Timing of Signals over Fine and Coarse Ranges

8. Any inquiry concerning this communication, or earlier communications from the examiner should be directed to Thomas Volper whose telephone number is 703-305-8405 and fax number is 703-746-9467. The examiner can normally be reached between 8:30am and 6:00pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu, can be reached at 703-308-6602. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4750.

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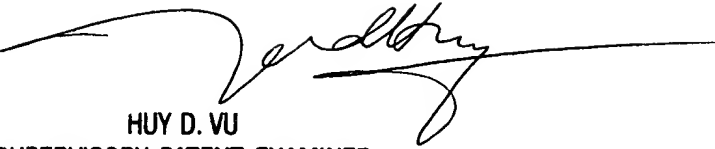
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Thomas E. Volper

TEV

May 14, 2004


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SUPERVISORY PATENT EXAMINER
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